NORTH CAROLINA LAPIDARY SOCIETY

December 1983



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Third Theretay each month.
GEMCRAFTERS
21 06 Patterson St.
Greensboro, NC 27407



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VICE PRES. : DENNIS WALTERS

about the Committee of the officers of the

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Liberty, NC 27298

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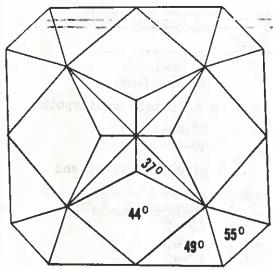
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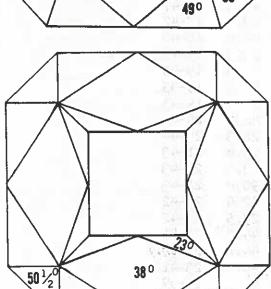
SQUARE CROSS

LeRoy Galbraith DESIGNED BY -

1310 East 56th · Tacoma, Washington 98404

USE A 96 INDEX GEAR ANGLES ARE FOR QUARTZ





Material Used: Smoky Quartz · Stone Size: 15 x 15 mm. I cut pavilion first. When Cutting crown main's leave girdle 1 1/4 mm, thick as it will cut away when girdle facets are cut. Recut corners to provide for mounting stone.

PAVILION

ANGLE	INDEX
44°	96 - 24 - 48 -72
37°	93 - 3 - 21 - 27 - 45 - 51 - 69 - 75
49°	94 - 2 - 22 - 26 - 46 - 50 - 70 - 74
55°	12 - 36 - 60 - 84

CROWN

ANGLE	INDEX			
38°	96 - 24 - 48 - 72			
At this po	oint I cut and polish table 50% to 60% of stone.			
23°	94 - 2 - 22 - 26 - 46 - 50 - 70 - 74			
44°	94 - 2 - 22 - 26 - 46 - 50 - 70 - 74			
50 1/2°	12 - 36 - 60 - 84			

Girdle will be uneven when finished. Square Stone at 90%.

Index: 96-24-48-72 (MAINS)

12-36-60-84 (CORNERS)

from FACETS, August, 1983

Double Rose Pear by Robert H. Long

Rose cuts are designs entirely made up of triangular facets. A single Rose has one flat (non-triangular, usually) facet in lieu of a pavilion. In a Double Rose, the pavilion is a mirror image of the crown.

This new design in a very old style is relatively shallow. It should be suitable for colored stones which are too intense (such as some garnets) to permit normal depth.

STEP DESIGN ANGLE SEARING INDEX			04	INDEX		/W 1.5	O 114 FACETS
50-54-58-62 Cut to temporary centerpoint F2 90.0 90.0 90.0 02-06-10-14 50-54-58-62 Level girdle at blunt end F3 35.0 37.0 42.0 64-08-16-48-56 F4 19.9 21.3 25.0 64-08-16-48-56 F5 19.4 20.7 24.3 17-47 F6 36.4 38.4 43.5 17-47 F7 90.0 90.0 90.0 17-47 F8 35.0 37.0 42.0 18-46 F9 20.2 21.6 25.3 18-46 F10 19.8 21.2 24.8 19-45 F12 90.0 90.0 90.0 19-45 F13 35.0 37.0 42.0 20-44 F14 21.0 22.5 26.3 20-44 F15 20.6 22.0 25.8 21-43 F16 36.4 38.5 43.5 21-43 F16 36.4 38.5 43.5 21-43 F17 90.0 90.0 90.0 21-43 F18 35.0 37.0 42.0 22-42 F19 22.9 24.5 28.5 22-	32	21.				2	
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^{*} Seattle Facetor Design, May 1983.

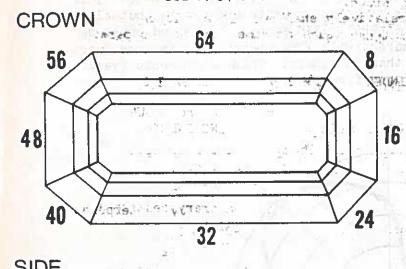
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from The FACETIER

STANDARD EMERALD CUT

USE A 64 TNDEX GEAR

ANGLES ARE FOR QUARTZ

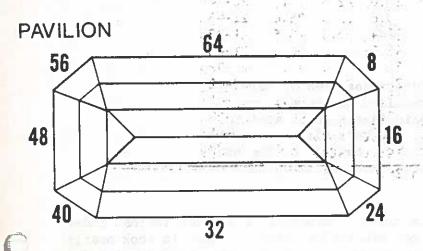


ANGLE	INDEX
900	64 · 8 · 16 · 24 32 · 40 · 48 · 56
CUT ,& P	OLISH TABLE
11.73	& Pavilion hóld to of Diagram.

64 16 - 32 - 48

SIDE	* 11 3.71		
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43	_	254 Table 3	1

1	55°	64 • 16 • 32 • 48
Corner — Facets	42°	8 · 24 · 40 · 56
	27°:	8 • 24 • 40 • 56
70 V	55°	8 • 24 • 40 • 56
PAVILION	63°	64 • 16 • 32 • 48
X 8	53°	64 • 16 • 32 • 48
	43°	64 • 16 • 32 • 48
Corner — Facets	63°	8 • 24 • 40 - 56
4:14	53°	8 - 24 - 40 - 56 - 1



In this Emerald Cut, if difficulty is encountered in getting facets to cut parallel or polish properly all over, remember to use the Sapphire Radial Compound to adjust the index angle ever so slightly to correct the problem.

To cut a stone of predetermined size, cut the girdle first. Leave about 40% of the top of the stone for the table. Always polish the facets furtherest from the girdle first.

from FACETS, August, 1983

irectional Hardness by Clifford D. Older

while the many the

Northridge, Illinois

Among the properties affected by crystal-lattice structure is hardness. This varies not only between minerals such as corundum, apatite and quartz, but also changes with direction within the same mineral. For example, cultured man-made quartz spheres, tumbled and then remeasured, will show uneven wear because quartz is softer in some crystal orientations than in others. This anisotropic (variable) hardness is illustrated in the accompanying figure.

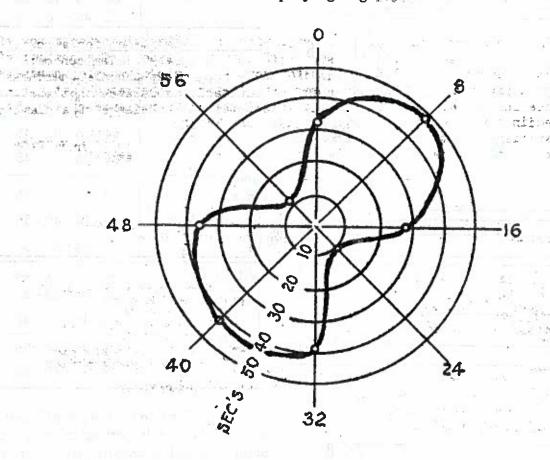


FIGURE 1 -- Anisotropic hardness measured by varying cutting times required to shape a row of uniform-sized main facets on an apatite round brilliant. Numbers placed outside are index positions. Numbers on the concentric circles are cutting times in seconds.

The time required to remove equal amounts of material is plotted against index positions for the main facets of a large calcite brilliant. Thus, it took nearly fifty seconds to cut the facet at index position 8, but only ten seconds at index position 24. Lap speed was constant, and finger pressure on the gem was as uniform as possible. This would indicate that a small star facet at index position 20 would cut very fast indeed --- possibly at less than one second. Also to be noted is the fact that opposite facets exhibit about the same hardness characteristics.

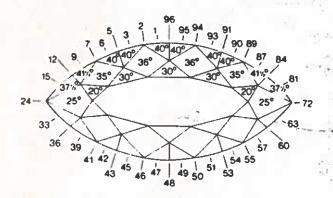
With most faceting materials, differences in directional hardness are less, and lead to no problems. With a few minerals, however, the difference in directional hardness is so striking that cutting at equal times for equal-sized facets is im-The second secon possible 《Line Miller 新加斯·阿拉斯斯特特特特·阿拉拉斯斯特斯特特特

Among those minerals requiring unusual care to cut successfully are kyanite, calcite, rhodochrosite and topaz, but most materials need an extra inspection, especially when cutting small facets.

EDITORIAL NOTE: In several minerals, the variation in cutting times for a row of uniform facets can be related to the presence of cleavage planes. The contour of the number 8 of Older's FIGURE 1 parallels the contour of micro-indenter hardness variation in a topaz crystal. Thus an observant faceter demonstrates that abrasive resistance in a mineral can be related to resistance to pressure of a diamond point measured in the scientific laboratory (Wilhelm Meyer).

Older's experience at the faceter's bench with small facets is also a warning against placing too much reliance on electronic depth-gauge indicators.

Source unknown

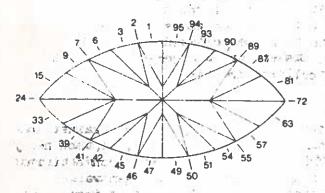


THE SPLIT-EACET MARQUISE - 96 INDEX (Ratio length to width, 2.1.1)

Crown

- 1. Cut 4 facets at 36° elevation index 2, 94, 46, and 50.
- 2. Cut 4 facets at 35° index 7, 89, 41, and 55.
- 3. Cut 2 ends at 25° index 24 and 72.
- 4." Cut 6 stars at 30° index 96, 48, 5, 91, 43, and 53.
- 5. Cut 4 stars at 20° index 12, 84, 36, and 60.
- 6. Cut 20 crown girdle facets as index locations indicate on drawing. (Elevation angles may vary from those shown)

Pölishing order, from table toward girdle.



Pavilion ***-

- 1. Cut 4 facets at elevation angle of 41° at middle of pavilion index 2, 94, 46, and 50
- 2. Gut 4 facets at 39½° elevation index 7, 89, 41, and 55. 3. Cut 4 facets at 36½° index 9, 87, 39, and 57. 4. Cut 4 facets at 31° index 15, 81, 33, and 63.

- 5. Cut 4 girdle facets at approximately 42° index 1, 95, 47,
- 6. Cut 4 girdle facets at approximately 41° index 3, 93, 45,
- 7. Cut 4 girdle facets at 39° elevation index at 6, 90, 425

Polishing order: from cufet toward girdle. (Polish girdle on wood tap)

SETT OF STATE Berling Battle

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ing unusual care to cot successfi was less in year, but most materials need an dil a line action . Breets.

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